

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Exam: Function Reflections (Practice version 19)**

1. Let function  $f$  be defined by the polynomial below:

$$f(x) = -3x^4 - 7x^3 - 4x^2 - 6x - 9$$

Draw lines that match each function reflection with its polynomial:

**Reflections**

**Polynomials**

$f(-x)$  •

•  $3x^4 - 7x^3 + 4x^2 - 6x + 9$

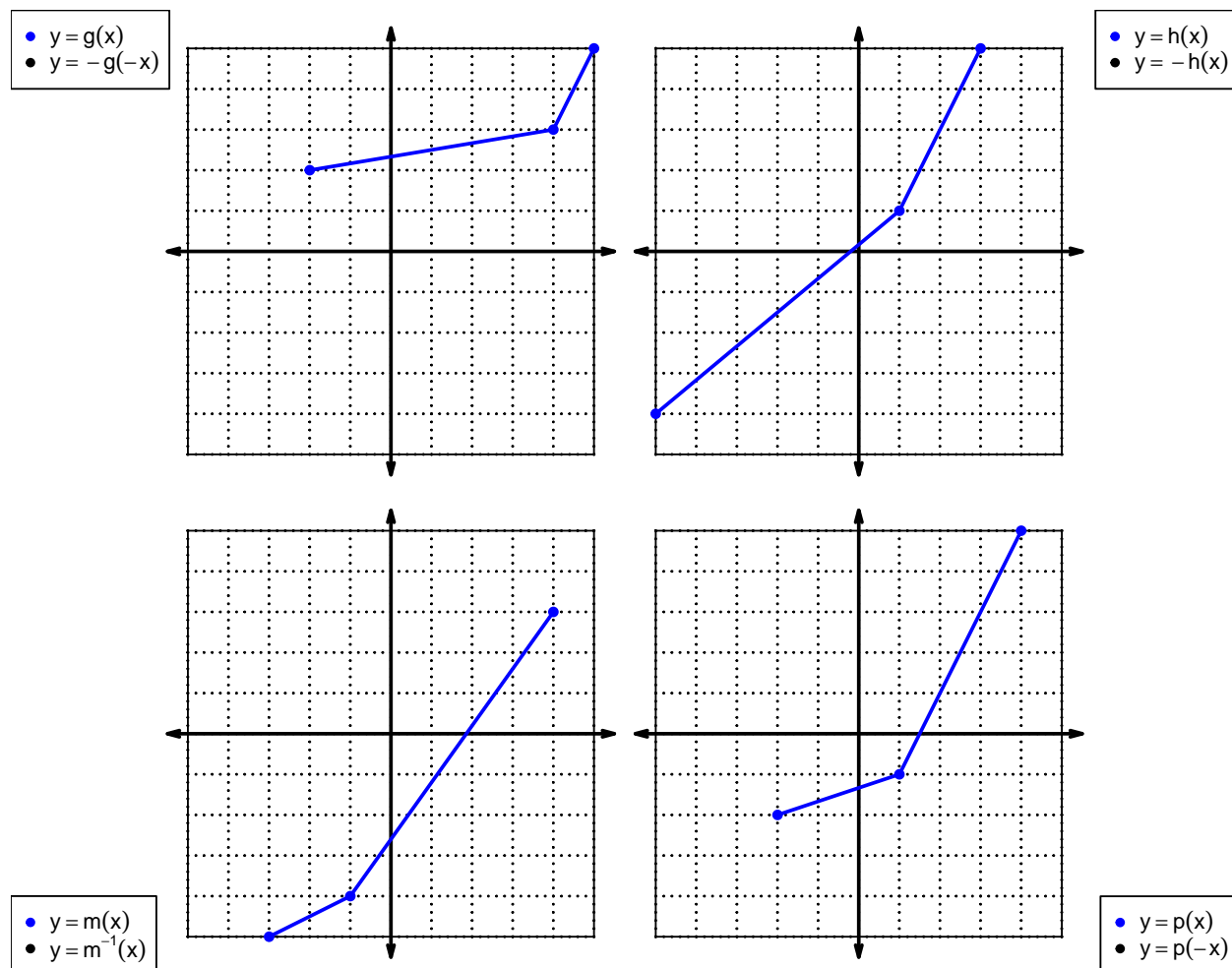
$-f(-x)$  •

•  $3x^4 + 7x^3 + 4x^2 + 6x + 9$

$-f(x)$  •

•  $-3x^4 + 7x^3 - 4x^2 + 6x - 9$

2. In each  $xy$  plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The  $x$  axis is horizontal and the  $y$  axis is vertical (as typical), and the scale is equal on both axes.



## Exam: Function Reflections (Practice version 19)

For all questions on this page, the functions  $f$ ,  $g$ , and  $h$  are defined by the table below.

$x$	$f(x)$	$g(x)$	$h(x)$
1	9	5	6
2	1	9	4
3	7	2	1
4	5	7	3
5	2	4	7
6	3	8	9
7	8	1	2
8	6	6	5
9	4	3	8

3. Evaluate  $h(3)$ .

4. Evaluate  $f^{-1}(4)$ .

5. Assuming  $f$  is an **even** function, evaluate  $f(-8)$ .

6. Assuming  $g$  is an **odd** function, evaluate  $g(-7)$ .

## Exam: Function Reflections (Practice version 19)

7. A function,  $f$ , is **even** if  $f(x) = f(-x)$  for all  $x$  in the domain. A function,  $g$ , is **odd** if  $g(x) = -g(-x)$  for all  $x$  in the domain.

Let polynomial  $p$  be defined with the following equation:

$$p(x) = x^2 - 1$$

- a. Express  $p(-x)$  as a polynomial in standard form.

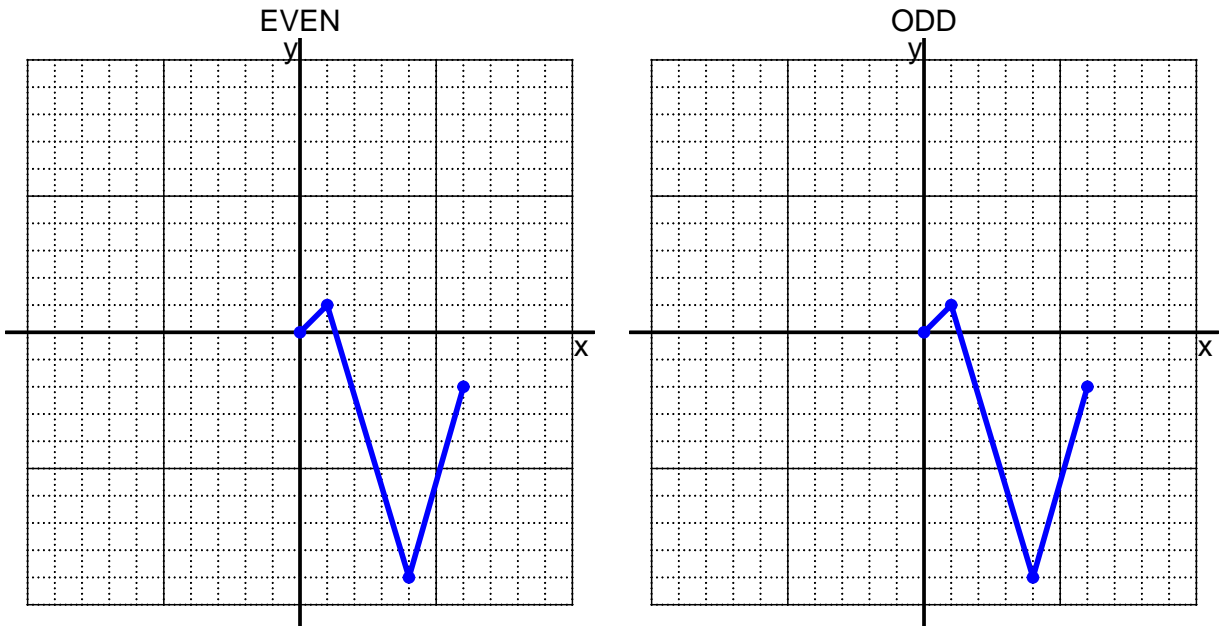
- b. Express  $-p(-x)$  as a polynomial in standard form.

- c. Is polynomial  $p$  even, odd, or neither?

- d. Explain how you know the answer to part c.

## Exam: Function Reflections (Practice version 19)

8. I have drawn half of a function. Draw the other half to make it even or odd.



9. Let function  $f$  be defined with the equation below.

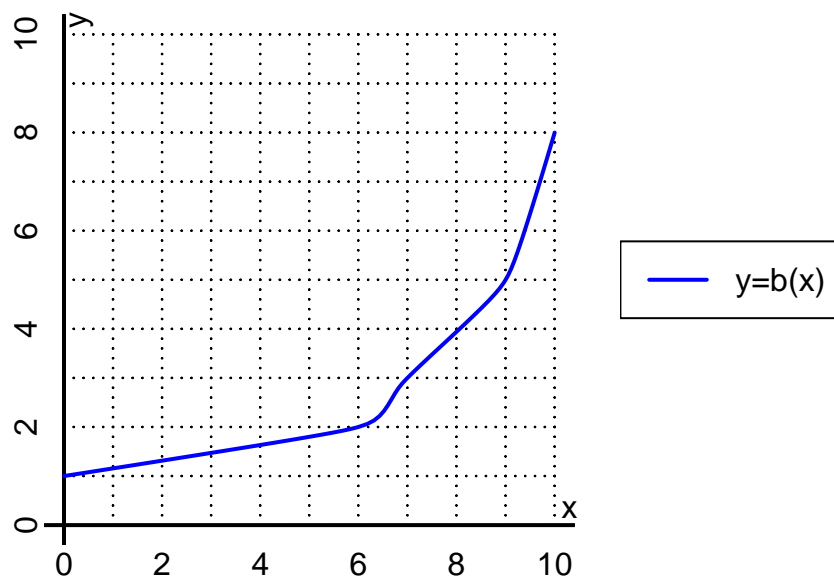
$$f(x) = 9(x - 2)$$

a. Evaluate  $f(10)$ .

b. Evaluate  $f^{-1}(36)$ .

## Exam: Function Reflections (Practice version 19)

10. The function  $b$  is represented by the curve  $y = b(x)$  graphed below.



a. Evaluate  $b(7)$ .

b. Evaluate  $b^{-1}(2)$ .

## Exam: Function Reflections (Practice version 19)

11. Function  $f$  is defined by the table below.

a. Complete the columns for  $-f(x)$  and  $f(-x)$  and  $-f(-x)$ .

$x$	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	5			
-1	-3			
0	0			
1	3			
2	-5			

b. Is function  $f$  even, odd, or neither?

c. How do you know the answer to part b?